

REMARKS/ARGUMENTS

Claims 1-20 are pending. No new matter has been introduced because no amendments have been made. A clean copy of the claims is provided for the convenience of the Examiner. Favorable consideration of this response and allowance of this application are now respectfully requested.

Aspects of the Invention and the Prior Art

• The inventors have shown that adding pea protein during alcohol-beverage making significantly increases—almost triples—foam production as indicated by NIBEM value; see Table 1 on page 8 of the specification. Soybean protein, from another legume, did not produce this effect. Similar superior foaming properties provided by pea protein in comparison to soybean protein for a variety of embodiments of the invention are shown Tables 5 (page 11), 9 (page 15), 13 (page 18), 17 (page 21), 21 (page 24) and 25 (page 28).

	NIBEM value (foaming property)	Foam production compared to control
# 1-1 No added protein (control)	57	100 %
# 1-2 Green pea protein added (invention)	160	281 %
# 1-3 Soybean protein added (comparative)	64	112 %

• The Examiner has acknowledged that none of the primary references cited in the obviousness rejections—Hsu, Oono or Bavisotto--discloses adding *pea protein* during beer-making and cannot as a matter of fact suggest that adding pea protein has any effect on foaming properties.

- Only the secondary reference Boni, et al. describes pea protein for use in clarifying beverages, but not for increasing their foaming properties. Boni, paragraphs [0015] and [0016], also describes other kinds of legume or cereal proteins, including soybean (“soja”) protein, but is silent about whether any of these would significantly enhance the foaming properties of an alcoholic beverage. As shown in the present specification, soybean protein does not provide the same enhancement of NIBEM values compared to pea protein. Boni does not recognize the superior ability of pea protein to enhance foaming properties in of an alcoholic beverage.

#### Objection -- Claims

Claims 17-20 were objected to for using the term “NIBEM value”. This term is not an abbreviation and was well known in the art. It refers to a value obtained using a Nibem Foam Stability Tester. To show this, copies of technical literature from Norits Haffmans and section 9.42 of Analytica-EBC of European Brewery Convention are attached to this response. The term “Nibem-T” refers to a method involving temperature (“T”) correction. Accordingly, this objection may be withdrawn.

#### Rejection -- 35 U.S.C. § 103(a)

Claims 1, 5, 9, 10 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hsu, U.S. Patent No. 5,387,425, in view of Boni, et al., EP 962522. This rejection cannot be sustained because neither Hsu, nor Boni provides any motivation for method of using pea protein to enhance the foaming properties of an alcoholic beverage.

Hsu teaches a method for “enhancing foam properties of fermented malt beverages”; see title, involving the use of “foaming proteins”. This term has a broad meaning according to Hsu “the phrase “foaming proteins” as used in this specification and the appended claims is

intended to have a relatively broad meaning and to refer to proteins which contribute to the enhancement of beer foam, whether they be derived from the beer itself or from non-beer or commercial sources”, col. 5, lines 55-61. Specific natural foaming proteins obtained “from wheat gluten, malted barley, malted wheat, ale yeast, and lager yeast” are described in col. 6, lines 65 *ff.* Hsu **does not disclose pea protein** nor suggest that it would provide vastly superior foaming properties in comparison to other vegetable or legume proteins like soybean protein. Thus, Hsu would not have provided any motivation to one of ordinary skill in the art to select pea protein as opposed to any other protein or provide a reasonable expectation of success for the superior foaming properties conferred on an alcoholic beverage by the present invention.

Boni was relied upon for teaching “use of proteins in the beer production” and that “proteins could be obtained from various ‘vegetable material such as peas, beans, grains, etc.’”, OA, page 7, lines 20-21. It is clear from this statement that Boni does not suggest **selecting** pea protein as opposed to another protein such as soybean protein or recognize that such a selection would enhance foaming properties of an alcoholic beverage as shown by the experimental data in the specification.

As set forth by MPEP 2144.08 “Office personnel should determine whether >it would have been obvious to one of ordinary skill in the relevant art to make the claimed invention as a whole, *i.e., to select the claimed species or subgenus from the disclosed prior art genus*” (emphasis added). In the present situation, the Examiner has not explained why one of ordinary skill in the art would have selected pea protein instead of soybean protein or some other protein to enhance the foaming properties of an alcoholic beverage. Nevertheless, referring to the criteria set forth by MPEP 2144.08 the Applicants note that (a) the size of the genus taught by Boni is potentially unlimited—proteins from cereals, legumes and fruits, see paragraphs [0015] and [016]. (b) Boni does not expressly teach selecting any of these

proteins to enhance foaming properties. (c) Boni doesn't suggest selecting proteins having structural similarity to peas and to the extent that soybeans and peas are related as legumes doesn't recognize any difference between using peas or soybeans. (d) Boni does not teach any similar properties for these proteins in relationship to enhancing foaming properties which is the object of the claimed method. (e) As shown by the experimental data in the specification this art is unpredictable since methods using pea protein vs. those using soybean protein produced alcoholic beverages with significantly different foaming properties as well as difference in organoleptic qualities. (f) Boni doesn't provide any other reason for selecting pea protein instead of soybean protein or protein from other legumes, cereals or fruits. Consequently, the Examiner has not established a *prima facie* case for obviousness of the claimed method which requires that **pea protein be selected** or any reasonable expectation of success for the significantly superior foaming properties provided by the invention. Therefore, this rejection cannot be sustained.

Rejection -- 35 U.S.C. §103(a)

Claims 2-4, 6-8, 11-16 and 18-20 were rejected under 35 U.S.C 103(a) as being unpatentable over Oono, WO 2004/000990 (English translation: U.S. 2005/0220935), in view of Boni, et al., EP 962522. This rejection cannot be sustained because neither Oono nor Boni suggests a method of producing an alcoholic beverage using pea protein as opposed to some other kind of protein, such as soybean or cereal protein.

Oono teaches a process for producing a beer-like alcoholic beverage; see title which has "good head retention", paragraph [0001]. As substances for enhancing foam formation or head retention various soap-like compounds (saponins) and some proteinaceous substances (e.g., albumin, fetal bovine serum albumin) are described at paragraph [0030]. As acknowledged on page 6, line 1 of the final OA, "Oono does not disclose proteins derived

from peas”. Oono cannot suggest or provide a reasonable expectation of success for the method of the present invention which requires the selection of pea protein and which confers superior foaming properties on an alcoholic beverage compared to methods using other kinds of proteins such as soy protein.

Boni has been considered above and also fails to provide any motivation for selecting pea protein instead of some other kind of protein and fails to recognize the superior foaming properties achieved by making this selection. Consequently, this rejection cannot be sustained.

Rejection -- 35 U.S.C. §103(a)

Claims 2-4, 6-8, 11-16 and 18-20 were rejected under 35 U.S.C 103(a) as being unpatentable over Bavisotto, et al., U.S. 3,720,517, in view of Boni, EP 962522. This rejection cannot be sustained because neither Bavisotto or Boni provides any motivation for selectively incorporating a pea protein in the production of an alcoholic beverage with foaming properties.

Bavisotto is relied upon for teaching “preparation of an alcoholic beverage by forming a malt-based liquid containing a fermentable carbohydrate from one or more sources; a food grade material having a high soluble protein or amino acid content; malt and hops or hop extract.” (Office Action at page 7). Further, the Office Action asserts that Bavisotto “discloses material derived from soy bean, such as soya flakes” and an “alcoholic beverage prepared by the method described above.” (Id.). Bavisotto is directed to “providing a champagne beverage without the use of grapes and without the addition of flavors”, (Col. 1, lines 31-32 of Bavisotto) and is not concerned with improving foaming properties. It cannot as a matter of fact suggest that adding pea protein has any effect on foaming properties since it does not even disclose pea protein as acknowledged on page 7, line 19 of the final OA.

Boni has been considered above and also fails to provide any motivation for selecting pea protein instead of some other kind of protein and fails to recognize the superior foaming properties achieved by making this selection. Consequently, this rejection cannot be sustained.

Conclusion

In view of the amendments and remarks above, the Applicants respectfully submit that this application is now in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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